

What is claimed is:

1. A method of operating a multiservice packet based switch including redundant switching cores, said method comprising the steps of:
 - providing a plurality of ingress and egress communications traffic flow controllers, each of said flow controllers directing one or more threads of said communications traffic over one or another of said redundant switching cores;
 - monitoring communications flow paths traversing said ingress flow controller, one of said redundant switching cores and said egress flow controller;
 - detecting a failure in one of said communication flow paths; and
 - switching said flow path to another of said switching cores, whereupon flow paths that are unaffected by said failure remain in place and do not switch cores.
2. The method of Claim 1, wherein communication flows in opposite directions between same ingress and egress controllers need not traverse a same one of said switching cores.
3. The method of Claim 1, wherein said step of monitoring flow paths is accomplished using link test cells generated from a link test generator in said ingress flow controller to a link test cell receiver in said egress flow controller.
4. The method of Claim 1, further including the step of altering a filter table in said egress flow controller upon detection of a flow path failure to thereby utilize said flow path from said another switching core.
5. The method of Claim 4, wherein said step of altering said filter table is accomplished via a service shelf processor.
6. The method of Claim 1, wherein said ingress flow controller need not be notified of said switching of said flow path to said another switching core.

7. The method of Claim 1, wherein said redundant switching cores need not operate in lock step.

8. The method of Claim 3, wherein aggregator and core functions within said switch also monitor for presence of link test cells.

9. The method of Claim 3, wherein a flow path is considered to be restored upon receipt of test cells for a period of time.

10. The method of Claim 7, wherein said flow controllers include a back pressure mechanism to reduce overall combined flows below a given rate that is suitable for a traffic management function therein so as to avoid cell loss.

11. The method of Claim 3, wherein said ingress flow controllers are operable to send special test cells to all programmed destinations to disable further test cell checking related to said ingress flow controller.

12. The method of Claim 3, wherein each of said test cells includes a hierarchical address having multiple fields pertaining to various type links within said interface for traversal thereover.

13. A packet based multiservice switch device, comprising:
 at least two redundant switching cores;
 a plurality of ingress and egress communications traffic flow controllers, each of said flow controllers directing one or more threads of communications traffic over one or another of said redundant switching cores;
 said flow controllers monitoring communications flow paths traversing said ingress flow controller, one of said redundant switching cores and said egress flow controller, whereupon detection of a failure in a link corresponding to one of said communication flow paths produces switching of a respective one of said flow paths

from said one switch core to said another switch core, whereupon said flow paths that are unaffected by said link failure remain in place and do not switch cores.

14. The device of Claim 13, wherein communication flows in opposite directions between same ingress and egress controllers need not traverse a same one of said switching cores.

15. The device of Claim 13 wherein said ingress flow controllers include a link test cell generator and said egress flow controller includes a link test cell receiver, monitoring of flow paths being accomplished using link test cells generated from a link test generator in said ingress flow controller to a link test cell receiver in said egress flow controller.

16. The device of Claim 13, further including a filter table in said egress flow controller alterable upon detection of a flow path failure to thereby prompt utilization of said flow path from said another switching core.

17. The device of Claim 16, wherein said step of altering said filter table is accomplished via a local service shelf processor.

18. The device of Claim 13, wherein said ingress flow controller need not be notified of said switching of said flow path to said another switching core.

19. The device of Claim 13, wherein said redundant switching cores need not operate in lock step.

20. The device of Claim 15, wherein aggregator and core functions within said switch also monitor for presence of link test cells.

21. The device of Claim 15, wherein a flow path is considered to be restored upon receipt of test cells for a period of time.

22. The device of Claim 19, wherein said flow controllers include a back pressure mechanism to reduce overall combined flows below a given rate that is acceptable for a traffic management function therein

23. The device of Claim 13, wherein said ingress flow controllers are operable to send special test cells to all programmed destinations to disable further test cell checking related to said ingress flow controller.

24. The device of Claim 13, wherein each of said test cells includes a hierarchical address having multiple fields pertaining to various type links within said interface for traversal thereover.

25. The device of Claim 15, wherein said link test cell generator is operable to back pressure a traffic manager in said ingress flow controller to create space for test cell insertion

26. An apparatus for controlling flows in a multiservice switch including at least two redundant switching cores, said apparatus comprising:

a test cell generator for generating test cells in accordance with communications flow paths over each of said redundant switching cores to specified destinations in said switch;

a test cell receiver for monitoring receipt of said test cells at said specified destinations, said test cell receiver maintaining a status of links from which it should receive test cells, said test cell receiver operable to declare a link fault upon failure to receive test cells from said link over a period of time; and

a switch function operable to direct receipt of a communications flow of only an impacted flow path from one of said redundant cores to another of said cores upon indication of said link fault from said test cell receiver.